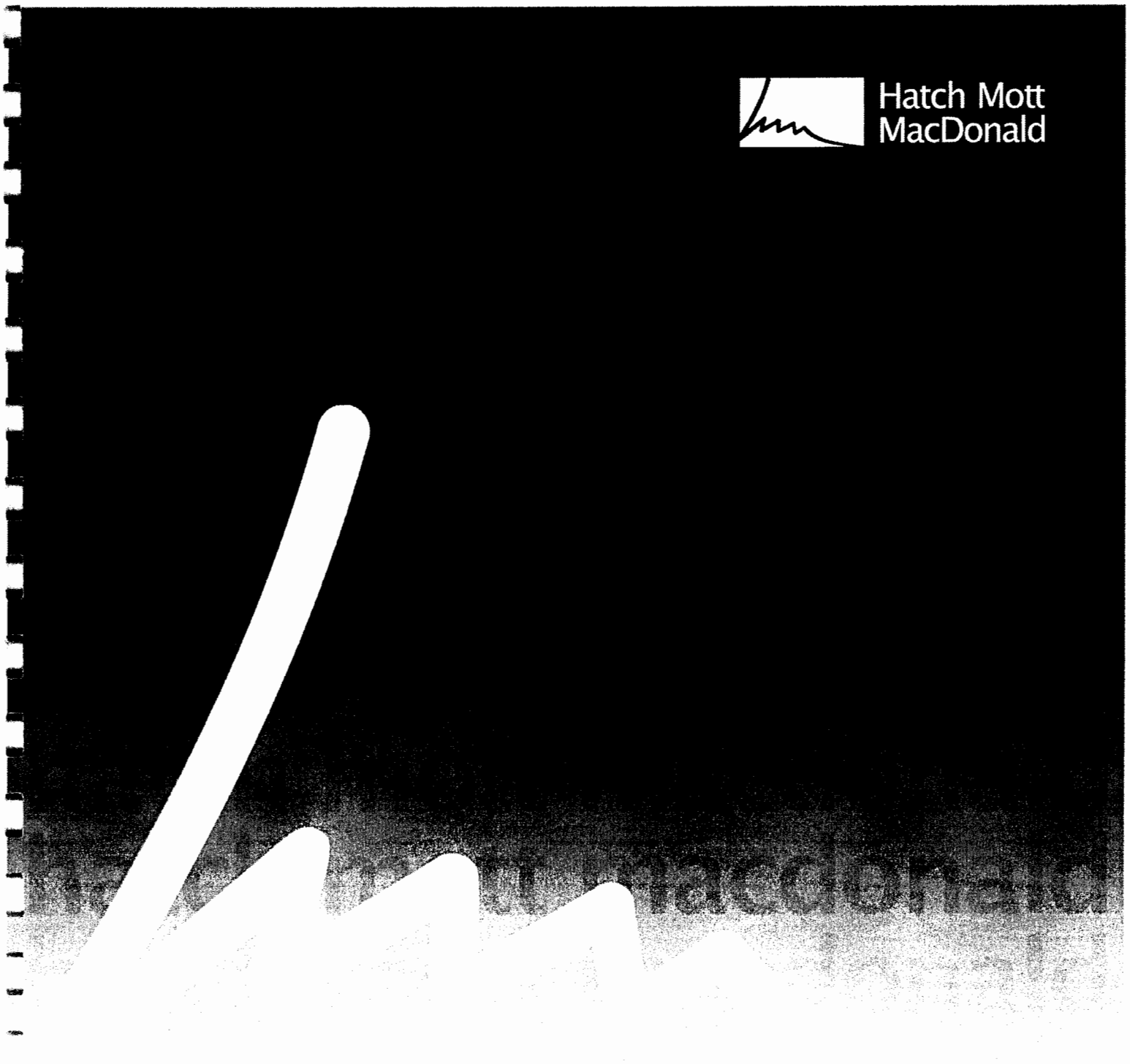


OSRAM SYLVANIA PRODUCTS, INC.

Final Report

Facility Lead Corrective Measures Implementation Agreement

Wellsboro, Pennsylvania

Prepared by Hatch Mott MacDonald
November 2006

HMM# 229281

TABLE OF CONTENTS

FIGURES

TABLES

APPENDICES

EXECUTIVE SUMMARY

OSRAM SYLVANIA Products Inc. (OSRAM) has completed a three-year, Facility Lead Corrective Measures Implementation Agreement ("the Agreement") at its Wellsboro, Pennsylvania glass manufacturing facility. The following obligations, contained in the Agreement, have been met. The groundwater monitoring wells selected by the United States Environmental Protection Agency (EPA) have been tested and the results analyzed for a period of three years. Facility institutional controls have been implemented to eliminate the potential for unacceptable human exposure to the impacted groundwater. A deed notice restricting groundwater use has been made for the OSRAM property at 1 Jackson Street, Wellsboro, Pennsylvania.

In 2000, OSRAM completed a RCRA Facility Investigation (RFI). The RFI focused on assessing the potential risk to human or ecological receptors of groundwater beneath the site that had been impacted with dissolved hexavalent chromium and dissolved arsenic. The RFI Final Report concluded that contaminated groundwater migration was controlled at the facility, and that human health and ecological exposure was also controlled. At the conclusion of the RFI, the EPA directed OSRAM to complete a three-year, semi-annual groundwater-monitoring program in accordance with the Agreement with the EPA. The objective of this program was to confirm that contamination levels for dissolved hexavalent chromium and dissolved arsenic in the groundwater are stable and are not a threat to human health and/or the environment.

The three-year, semi-annual monitoring program commenced in December 2003. Groundwater samples were obtained from selected on-site groundwater wells that were used during the RFI, as specified in the Agreement. The collected samples were analyzed for dissolved hexavalent chromium and/or dissolved arsenic. The data obtained from the three-year, semi-annual monitoring program was analyzed and compared to data obtained during the RFI.

The results of these analyses and comparisons supports the conclusions initially developed during the RFI: the migration of contaminated groundwater at the facility is controlled, and the presence of dissolved arsenic and dissolved hexavalent chromium does not present a threat to human health or the environment. Furthermore, the data and analyses also indicate that the contamination

levels for dissolved hexavalent chromium and dissolved arsenic in the groundwater are generally stable.

Based on these findings, OSRAM has completed all obligations under the Agreement.

1.0 INTRODUCTION

a. Background

In 2000, OSRAM SYLVANIA Products, Inc. (OSRAM) completed a RCRA Facility Investigation (RFI) at their glass products manufacturing facility in Wellsboro, Pennsylvania. Figure 1 presents a site location map, and Figure 2 presents a site plan. The RFI was performed in accordance with the Final Administrative Order on Consent, RCRA Number 3-072-CA ("the Order") and the RFI Workplan that was approved by the United States Environmental Protection Agency (EPA) on July 21, 1998. The purpose of the RFI was to characterize the potential risk to human or ecological receptors associated with the presence of hexavalent chromium and arsenic in the shallow groundwater beneath the site. The RFI concluded that contaminated groundwater migration was controlled at the facility, and that human health and ecological exposure was also controlled.

At the conclusion of the RFI, the EPA issued a letter which stated that the Order has been satisfactorily completed. The EPA then directed OSRAM to implement a Final Remedy that consisted of a three-year, semi-annual groundwater-monitoring program. This direction was specified in a Facility Lead Corrective Measures Implementation Agreement ("the Agreement"). The objective of this program, as defined in the Agreement, was to confirm that contamination levels for dissolved hexavalent chromium and dissolved arsenic in the groundwater are stable and are not a threat to human health and/or the environment.

b. Semi-Annual Monitoring

The three-year, semi-annual groundwater-monitoring program commenced in December 2003 in accordance with the Agreement. It should be noted that an additional round of data was collected in May 2001; it was believed then that the Agreement would have been finalized by that time, but negotiations continued beyond that time. However, the data is relevant to the objectives of the semi-annual monitoring program and have therefore been included in the analyses.

For each semi-annual groundwater monitoring event, trained personnel mobilized to the site and began the monitoring event by determining the depth to water in the wells that were included in the monitoring program defined in the Agreement. For the fall events, this consisted of MW-6, MW-9, MW-10, MW-12, MW-13 and MW-14. For the spring events, wells MW-12 and MW-14 were not included. Refer to Figure 2 for the location of these monitoring wells. An electronic water level meter was used for this purpose, using the top of each PVC well casing as the reference mark. The measured water level was used to calculate the volume of water in each well. Each well was then purged of three well volumes using dedicated disposable polyethylene bailers. During purging, field parameters (pH, Eh, temperature and conductivity) were monitored at the beginning of purging and after removal of each well volume using calibrated portable instruments. Purge water was placed into clean 55-gallon drums for subsequent disposal.

The wells were allowed to recharge overnight. On the following day, the water level in each monitoring well was checked to ensure that it had returned to near pre-purge conditions. The water level meter was decontaminated between wells using non-phosphate detergent and deionized water. Field parameters were measured again, and sampling began using dedicated disposable polyethylene bailers. Collected samples were field filtered using dedicated, disposable 0.45-micron filters and then transferred into clean, pre-preserved sample containers provided by the laboratory (Lancaster Laboratories) and labeled. During sampling, an equipment blank was prepared by pouring deionized water provided by the laboratory over all downhole sampling equipment and field-filtering equipment, and collecting the rinse in a sample container. After all of the subject wells were sampled, the samples were packed in ice in a shipping cooler for transport by priority overnight courier under appropriate chain-of-custody to the laboratory. Upon receipt at the laboratory, the samples were analyzed for dissolved hexavalent chromium and/or dissolved arsenic within specified method holding times and in accordance with the agreed-upon monitoring program.

For each individual monitoring event, the analytical results were tabulated and a brief letter report describing the findings was prepared and submitted to EPA in accordance with the Agreement. The tabulated data in each report also included the historical data collected to that point. This report is therefore intended to consider and interpret all of the data collected during the three-year, semi-annual groundwater-monitoring program as it pertains to the stated objective of the program. The report also discusses other institutional controls that have been implemented in accordance with the Agreement.

2.0 THREE-YEAR MONITORING PROGRAM RESULTS

a. Groundwater Elevations

Table 1 presents a summary of the groundwater elevations that were measured at the site during the RFI and during the three-year monitoring program. These values are also depicted in a time-series graph on Figure 3.

Examination of the data presented in Table 1 and Figure 3 indicates that groundwater elevations at the site are now slightly higher than the elevations measured during the RFI in 1998-1999. The measured elevation increase is approximately one-half foot. It should be noted that the monitored groundwater elevations at the various wells generally fluctuate in a similar manner, and the same groundwater flow directions still exist now as they did during the RFI period, i.e., towards the north-northwest and towards Charleston Creek.

b. Dissolved Arsenic

Table 3 presents the dissolved arsenic concentrations that were measured at MW-12 and MW-13 during the RFI and during the three-year monitoring program. The results are also displayed graphically in time-series fashion in Figure 4. Appendix A contains the laboratory data sheets and chain-of-custody forms.

Table 4 presents certain statistics that were calculated for the dissolved arsenic data obtained during the RFI and from the semi-annual monitoring program, including the mean and the 95% Upper Confidence Level (UCL). The calculated statistics indicate that the dissolved arsenic concentrations in the site groundwater are very stable - there has been little or no change in these statistics since the RFI was completed.

c. Dissolved Hexavalent Chromium

Table 3 presents the dissolved hexavalent chromium concentrations that were measured at MW-6, MW-9, MW-10, MW-12 and MW-14 during the RFI and during the three-year

monitoring program. The results are also displayed graphically in time-series fashion in Figure 5. Appendix A contains the laboratory data sheets and chain-of-custody forms.

Table 4 presents certain statistics that were calculated for the dissolved hexavalent chromium data from the RFI and from the semi-annual monitoring program, including the mean and the 95% UCL. The data and calculated statistics presented in these tables and graphs indicate the following:

- Impacted groundwater has not migrated close to Charleston Creek in the area of MW-12. Except for one statistical outlier obtained in 2001, no detectable concentration of dissolved hexavalent chromium was found at downgradient well MW-12 during any of the post-RFI monitoring events.

- Impacted groundwater has not migrated laterally in the direction of MW-10. Concentrations of dissolved hexavalent chromium at MW-10 during the post-RFI monitoring were comparable to or lower than concentrations measured at that well during the RFI.

- The average concentration of dissolved hexavalent chromium at MW-6 (an internal well just downgradient of the former dry well area) is now slightly higher than during the RFI (1.52 mg/L vs. 1.18 mg/L). The 95% UCL at MW-6 is now slightly lower than during the RFI (3.58 mg/L vs. 4.20 mg/L). The 95% UCL calculated during the RFI is, however, based on only two samples and it is of limited value for comparison purposes.

- Impacted groundwater has not migrated off the site. The average concentration of dissolved hexavalent chromium at MW-9 (a perimeter well located near Jackson Street) is now slightly higher than during the RFI (0.17 mg/L vs. 0.046 mg/L), and the 95% UCL is also slightly higher (0.287 mg/L vs. 0.063 mg/L). However, there is a noticeable downward trend in concentrations at MW-9 during the three-year post-RFI monitoring period, and recent test results have decreased to the point where they are now at or very near the RFI Action Level

of 0.11 mg/L. The next downgradient well, MW-14, which is located across Jackson Street, had no detectable concentration of dissolved hexavalent chromium during any of the post-RFI monitoring events.

3.0 DISCUSSION OF MONITORING PROGRAM RESULTS

a. Groundwater Elevations

There has been no change in the contaminant transport mechanisms to potential human or ecological receptors described in the RFI. Since there has been no significant change in groundwater elevations, particularly from one well to the next, groundwater flow characteristics at the site have remained essentially constant since the RFI. The RFI Final Report concluded that there were no viable human exposure pathways, and that the ecosystem of Charleston Creek, which receives discharging shallow groundwater, is the primary potential receptor of interest. It is appropriate to evaluate dissolved arsenic and dissolved hexavalent chromium data obtained since the RFI was completed with respect to impacts on that ecosystem in the same manner as was done during the RFI.

The observed general increase in groundwater elevations throughout the site may have influenced the detected concentrations of dissolved hexavalent chromium in the site groundwater. This is discussed in more detail in Section 3c of this report.

b. Dissolved Arsenic

Dissolved arsenic concentrations in site groundwater do not pose a significant risk to the Charleston Creek ecosystem or any other potential receptor of site groundwater. There has been no significant change in the measured dissolved arsenic concentration in groundwater at the site since the RFI was completed. The RFI evaluated dissolved arsenic impacts to Charleston Creek by estimating the mass loading rate to the creek and comparing in-stream concentrations to the Ambient Water Quality Criteria. That analysis resulted in an in-stream concentration nearly two orders of magnitude below the Ambient Water Quality Criteria. Because groundwater flow characteristics and measured concentrations have remained stable since the RFI, the mass loading of arsenic to Charleston Creek will be comparable to what was calculated during the RFI and will result in comparably low in-stream concentrations, when compared to the Ambient Water Quality Criteria.

c. Dissolved Hexavalent Chromium

The defined objective of the three-year monitoring program had two components: 1) to assess the stability of the contamination levels for dissolved hexavalent chromium and dissolved arsenic in the groundwater, and 2) to verify that such contaminant levels are not a threat to human health and/or the environment. In regard to the stability assessment, it is important to note that concentrations of compounds dissolved in groundwater typically vary over time due to a number of naturally-occurring phenomena, such as changes in groundwater elevations. In this scenario, increases in groundwater elevation have been known to cause slight increases in concentrations by the flushing of a small amount of contaminants that were bound in the vadose zone into solution. The concentrations typically then decrease as groundwater elevations fluctuate to lower levels over time.

The increase in dissolved hexavalent chromium concentration observed at MW-9 during the three-year monitoring program is believed to have been caused by this phenomenon. This conclusion is supported by the analysis shown in Figure 6, where the dissolved hexavalent concentrations measured at MW-9 are plotted against coincident groundwater elevations at that well. As shown on Figure 6, there was a proportional increase in dissolved hexavalent chromium concentration as the groundwater elevations increased. As stated previously, these concentrations would be expected to decrease as groundwater elevations drop or stabilize, and in fact this has also been observed, since the spring of 2004, the dissolved hexavalent chromium concentrations at MW-9 have been steadily decreasing.

There is no active source contributing additional hexavalent chromium to the subsurface environment, a fact that is important to remember when assessing the stability of the dissolved hexavalent concentrations. As stated in Section 1.2.2 of the RFI Final Report, the original source of hexavalent chromium (a former dry well) has been out of service for over 26 years now, and remedial activities in the former dry well area were completed over 17 years ago.

In summary, the data suggests that the concentrations of dissolved hexavalent chromium in groundwater at the site are stable. This statement is supported by the following points:

1. No significant increases in dissolved hexavalent chromium concentrations were identified at any of the monitoring wells included in the three-year monitoring program. The slight increases that were observed can likely be attributed to naturally-occurring increases in the groundwater elevations at the site.

2. There is no active source of hexavalent chromium at the site. The source material was removed many years ago.

This monitoring program also was designed to verify that the concentrations of dissolved hexavalent chromium in the site groundwater still do not pose a threat to human health and/or the environment. During the RFI, the impacts from the presence of dissolved hexavalent chromium in the site groundwater on the identified primary potential receptor, Charleston Creek, were evaluated by estimating the concentration that would be present in the groundwater that would discharge to the creek. To do so, a log plot was prepared (Figure 8 in Appendix H of the RFI Report); this plot compared the log of the concentration of dissolved hexavalent chromium at selected on-site wells to their distance from Charleston Creek. As described in Section 5 of the RFI Final Report, that plot illustrated a straight-line relationship that is typical of first-order reactions (e.g., reduction and hydroxide precipitation). At that time, the log plot demonstrated that the dissolved hexavalent concentrations dropped to levels less than the detection limit of 0.003 mg/L prior to reaching Charleston Creek. It was then concluded that the absence of an ongoing release, the time since the initial release, and the hydrological and geochemical conditions in the overburden aquifer all indicated that the dissolved hexavalent chromium in the groundwater at the site will not impact the water quality of Charleston Creek.

To confirm that this conclusion from the RFI was still valid, the log plot analysis was repeated using data obtained and calculated from the post-RFI monitoring period. The plot was modified slightly to improve the readability of the graph – the plot presented herein as Figure 7 shows the distance to Charleston Creek, rather than the distance from

the former dry well, as was shown in the RFI Final Report. As stated in Section 2 of this report, the measured concentrations of dissolved hexavalent chromium in MW-6 and MW-9 (and the statistics calculated from them) have increased slightly since the RFI. These slightly higher values (mean and 95% UCL) were plotted on a log plot along with the data that was used in the RFI; this updated plot is included as Figure 7.

The ecosystem of Charleston Creek is still not subjected to a significant risk as the result of the presence of dissolved hexavalent chromium in the shallow groundwater at the site. The updated log plot shown in Figure 7 indicates that the expected concentration of dissolved hexavalent chromium in groundwater discharging to Charleston Creek would be approximately 0.018 mg/L (the Y-intercept of the graph). This modeled concentration is only slightly higher than the chronic Ambient Water Quality Criteria for hexavalent chromium (0.011 mg/L). The Charleston Creek stream flow rate is orders of magnitudes greater than the groundwater discharge rate into the stream, and the resultant in-stream dissolved hexavalent chromium concentration will continue to be well below the Ambient Water Quality Criteria. This conclusion is also supported by the continuing lack of detectable concentrations of dissolved hexavalent chromium in the off-site well MW-14 and the well closest to Charleston Creek (MW-12), as well as the observed downward trend in dissolved hexavalent chromium concentrations at well MW-9.

4.0 FACILITY INSTITUTIONAL CONTROLS

a. Facility Procedures

OSRAM has three procedures which provide notification and restrict the potential for human contact with groundwater at this facility:

1. Outside Contractors Rules and Regulations, procedure number PDHR_4.4.6_001_006, requires contractors to notify Facility Management if excavation or subsurface work at a depth greater than 4 feet is planned, or if groundwater is encountered. Contractors and their employees are informed using the procedure prior to the start of work. A contractor representative is required to provide a signature and date in acknowledgement that the information was received and understood. The referenced document is attached as Appendix B.

2. Salaried Employee Orientation Checklist, procedure number WB-622-01:01 Rev 01 and Hourly Employee Orientation Checklist, procedure number WB-622-01:02, ensure all employees new to the Wellsboro facility are informed of possible groundwater contamination. Facility Management must be notified prior to excavation greater than four feet, and drilling for consumptive water is prohibited. The referenced documents are attached as Appendices C and D.

b. Borough Drinking Water Ordinance

The Borough of Wellsboro maintains a public water supply throughout the Borough and has enacted a local ordinance that makes it unlawful for OSRAM to install potable water supply wells at the Facility. Ordinance No. 494 was enacted on March 8, 1982 and provides, among other things, that:

> "It shall be unlawful from and after the date of this Ordinance, for any person, form or corporation to own, maintain, operate or use within the Borough, wells or similar other water supply systems upon any property now or hereafter improved

which abuts on or adjoins any street, alley, lane or public highway in which a water system is constructed."

c. Deed Notice

A Deed Notice with the following language was recorded for the Facility on January 20, 2004:

> "The shallow groundwater beneath the property contains hexavalent chromium and arsenic in excess of EPA's Maximum Contaminant Levels ("drinking water standards"). Groundwater within the property boundary shall not be used as a "drinking water supply," as that term is defined in Section 101(7) of the Comprehensive Environmental Response, Compensation, and Liability Act ("CERCLA"), 42 U.S.C. § 9601(7), so long as groundwater impacts remain above drinking water standards."

A copy of the Deed Notice is attached as Appendix E.

5.0 SUMMARY AND CONCLUSIONS

The following is a summary of the findings and conclusions that have been presented in this report:

- By completing the three-year, semi-annual groundwater monitoring program, OSRAM SYLVANIA Products, Inc. has complied with the Facility Lead Corrective Measures Implementation Agreement issued by the US EPA following completion of the RFI at their Wellsboro, Pennsylvania manufacturing facility.

- Groundwater elevations at the site are slightly higher now than during the RFI. However, the same generalized groundwater flow directions still exist at the site. Thus, no new exposure pathways for contaminated groundwater exist at the site, and Charleston Creek remains as the primary environmental receptor through discharge of shallow groundwater into the creek.

- The concentrations of dissolved arsenic measured during the three-year monitoring program are stable and very comparable to those measured during the RFI. In addition, the dissolved arsenic concentrations in site groundwater do not pose a significant risk to the Charleston Creek ecosystem or any other potential receptor of site groundwater. Mass loading calculations of arsenic to Charleston Creek, prepared during the RFI, are still valid. Those calculations demonstrated that in-stream concentrations would be nearly two orders of magnitude below the Ambient Water Quality Criteria for Charleston Creek.

- The concentrations of dissolved hexavalent chromium in groundwater at the site are generally stable. No significant increases in dissolved hexavalent chromium concentrations were identified at any of the monitoring wells included in the three-year monitoring program; the slight increases that were observed can likely be attributed to naturally-occurring increases in the groundwater elevations at the site, as discussed in Section 3.0 c. In addition, there is no active source of

hexavalent chromium at the site; the source material was removed many years ago. There is still no significant risk to the Charleston Creek ecosystem or any other potential receptors of the site groundwater. The analyses that were performed demonstrate that concentrations of dissolved hexavalent chromium in Charleston Creek are still well below the Ambient Water Quality Criteria.

- Institutional controls are in place at the Facility that eliminates the potential for unacceptable human exposure to the impacted groundwater.

- OSRAM SYLVANIA Products Inc. has recorded the restriction on groundwater use in the Facility's deed as discussed in the Statement of Basis for the RFI.

In summary, the data obtained during the three-year, semi-annual groundwater monitoring program supports the conclusions initially developed during the RFI: the migration of contaminated groundwater at the facility is controlled, and that the presence of dissolved arsenic and dissolved hexavalent chromium does not present a threat to human health or the environment. Given these conclusions, OSRAM has completed all obligations under the Agreement.

FIGURES

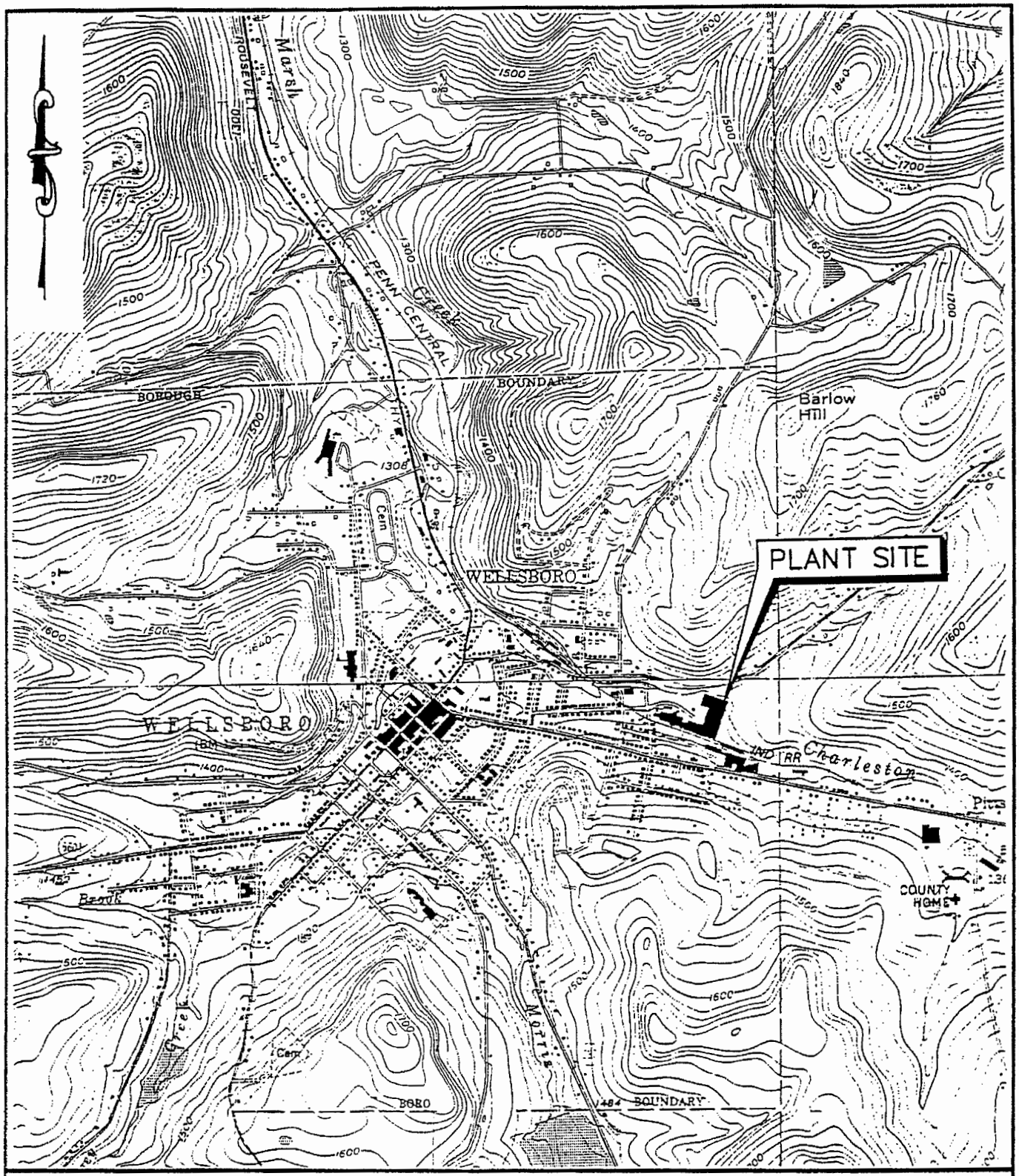


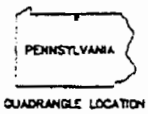
FIGURE 1

OSRAM SYLVANIA PRODUCTS INC.
WELLSBORO, PENNSYLVANIA

RCRA FACILITY INVESTIGATION

LOCATION MAP

PITTSBURGH, PENNSYLVANIA



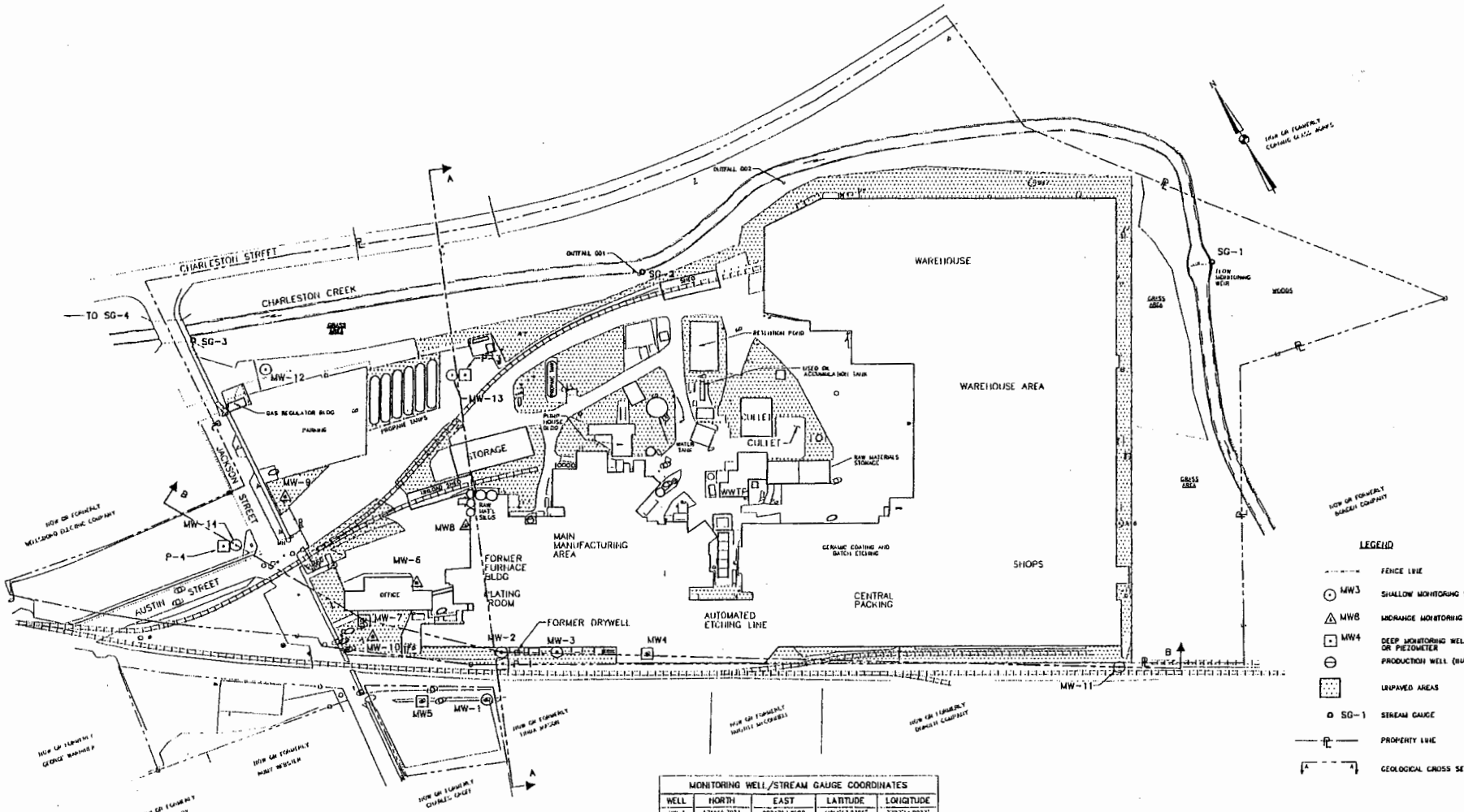
QUADRANGLE LOCATION

KEENEYVILLE, PA.
SE/4 ELKLAND 15' QUADRANGLE
N4145-W7715/7.5
1954
PHOTOREVISED 1969
AMS 5567 IV SE-SERIES V831

QUADRANGLE LOCATION

ANTRIM, PA.
41077-F3-TF-024
1946
PHOTOREVISED 1986
DMA 5567 III NE-SERIES V831

Killam
Associates ▫ Consulting Engineers



MONITORING WELL/STREAM GAUGE COORDINATES

WELL	NORTH	EAST	LATITUDE	LONGITUDE
MW-1	576556.7023	2094783.8690	41°41'53.2386"	77°37'14.8023"
MW-2	576609.7878	2094802.0144	41°41'53.7531"	77°37'14.2742"
MW-3	576686.3012	2094868.6001	41°41'54.5040"	77°37'13.4217"
MW-4	576545.7538	2094978.0261	41°41'53.0655"	77°37'11.9899"
MW-5	576683.8316	2094685.4877	41°41'53.3160"	77°37'15.8241"
MW-6	576732.9858	2094731.9432	41°41'54.0862"	77°37'15.1804"
MW-7	576709.7715	2094851.5271	41°41'54.7702"	77°37'16.2264"
MW-8	576767.4707	2094818.9238	41°41'55.4530"	77°37'14.9144"
MW-9	576804.3135	2094813.0572	41°41'55.8406"	77°37'16.0680"
MW-10	576686.1064	2094854.6533	41°41'54.5450"	77°37'16.1035"
MW-11	576232.4820	2095514.7249	41°41'50.2227"	77°37'04.8135"
MW-12	577067.1716	2094648.8435	41°41'58.3081"	77°37'18.1606"
MW-13	576870.8201	2094872.8136	41°41'57.3457"	77°37'13.2786"
MW-14	576861.5164	2094632.0160	41°41'56.3092"	77°37'17.8181"
P-1	576624.5762	2094981.7602	41°41'53.7018"	77°37'14.2973"
P-2	576574.8743	2094881.0284	41°41'57.3136"	77°37'13.1144"
P-3	576857.1508	2094521.4237	41°41'58.3169"	77°37'17.8810"

BASE MAP SOURCE: DRAWING NO. W-30-310, PREPARED SEPTEMBER AND OCTOBER 1951 BY J. SCOTT WATSON'S UNDER THE DIRECTION OF MORLE AMES, P.E.S.

NO.	DESCRIPTION	DATE	BY
10			
9			
8			
7			
6			
5			
4			
3			
2			
1			

REVISIONS

SCALE

FIGURE 2

OSRAM SYLVANIA PRODUCTS INC.
WELLSBORO, PENNSYLVANIA

RCRA FACILITY INVESTIGATION

SITE PLAN

OBERKillam Associates • Consulting Engineers PITTSBURGH, PENNSYLVANIA

DRAWN	CHECKED	DATE	SCALE	PROJECT NO.	DRAWING NO.
DMM	D.A.K.	NOV 1998	AS NOTED	215128	2 OF 7

Figure 3
Groundwater Elevations

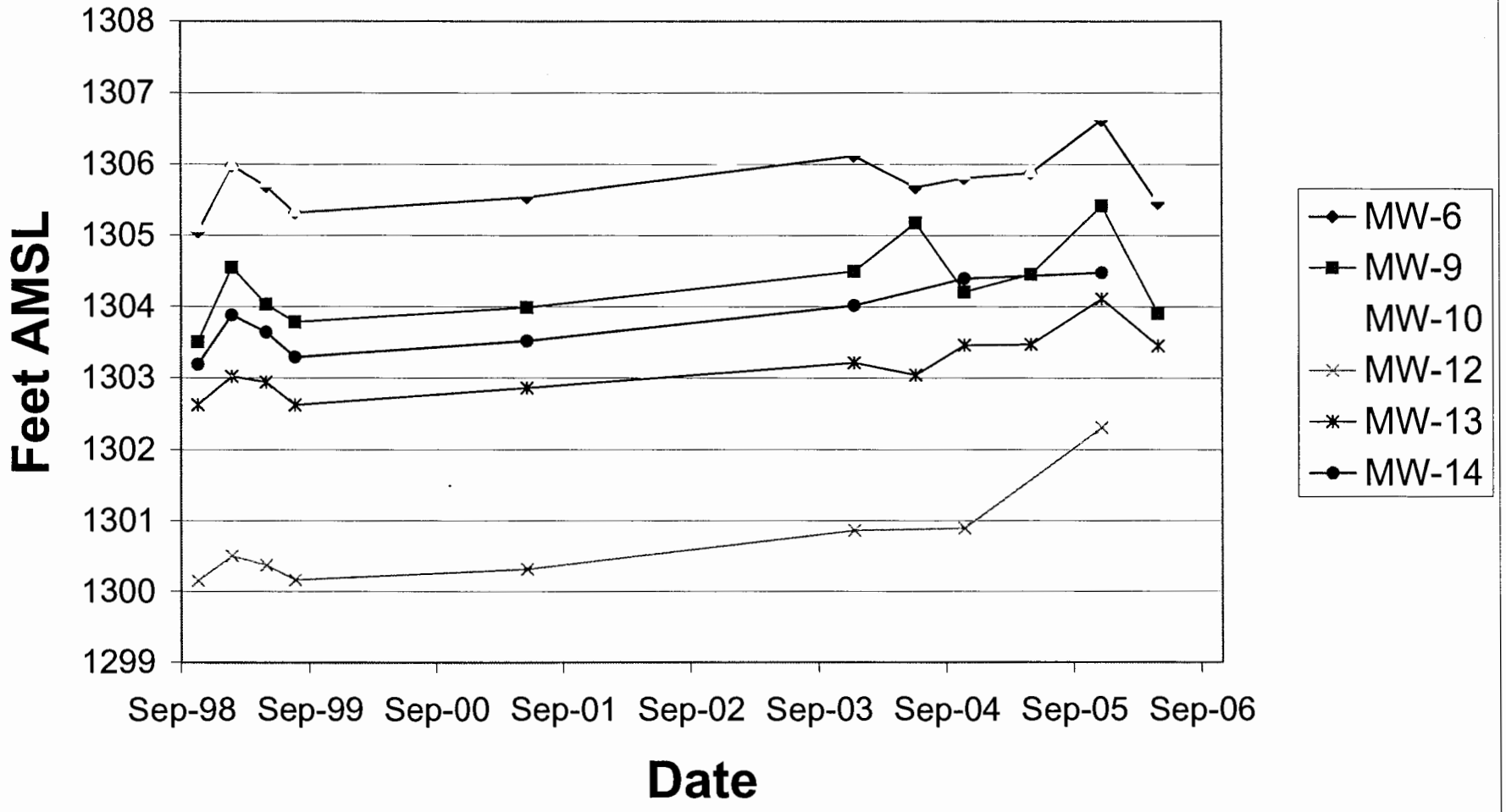


Figure 4
Dissolved Arsenic Concentrations
Downgradient Wells

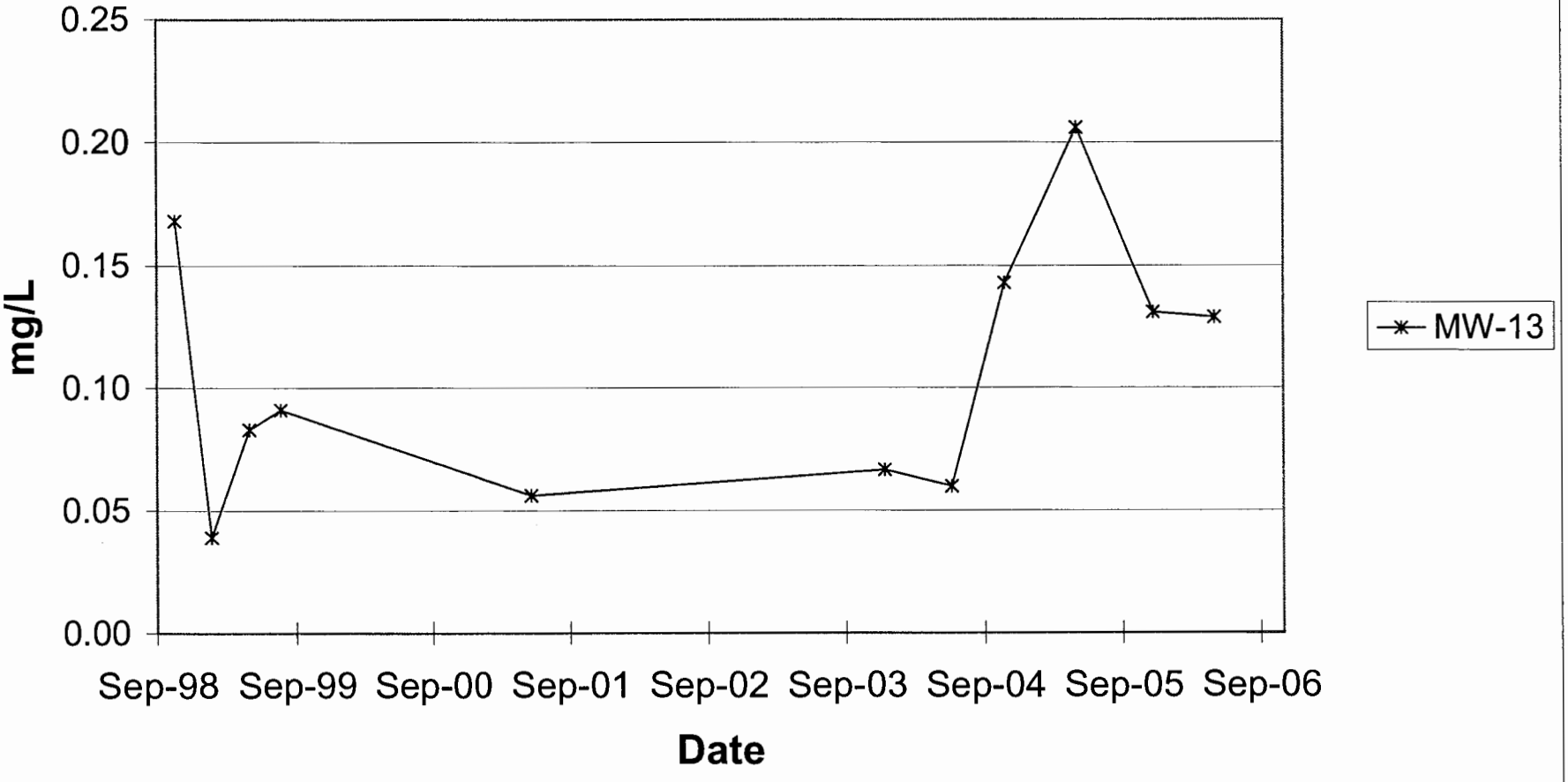


Figure 5
Dissolved Hexavalent Chromium Concentrations
Downgradient Wells

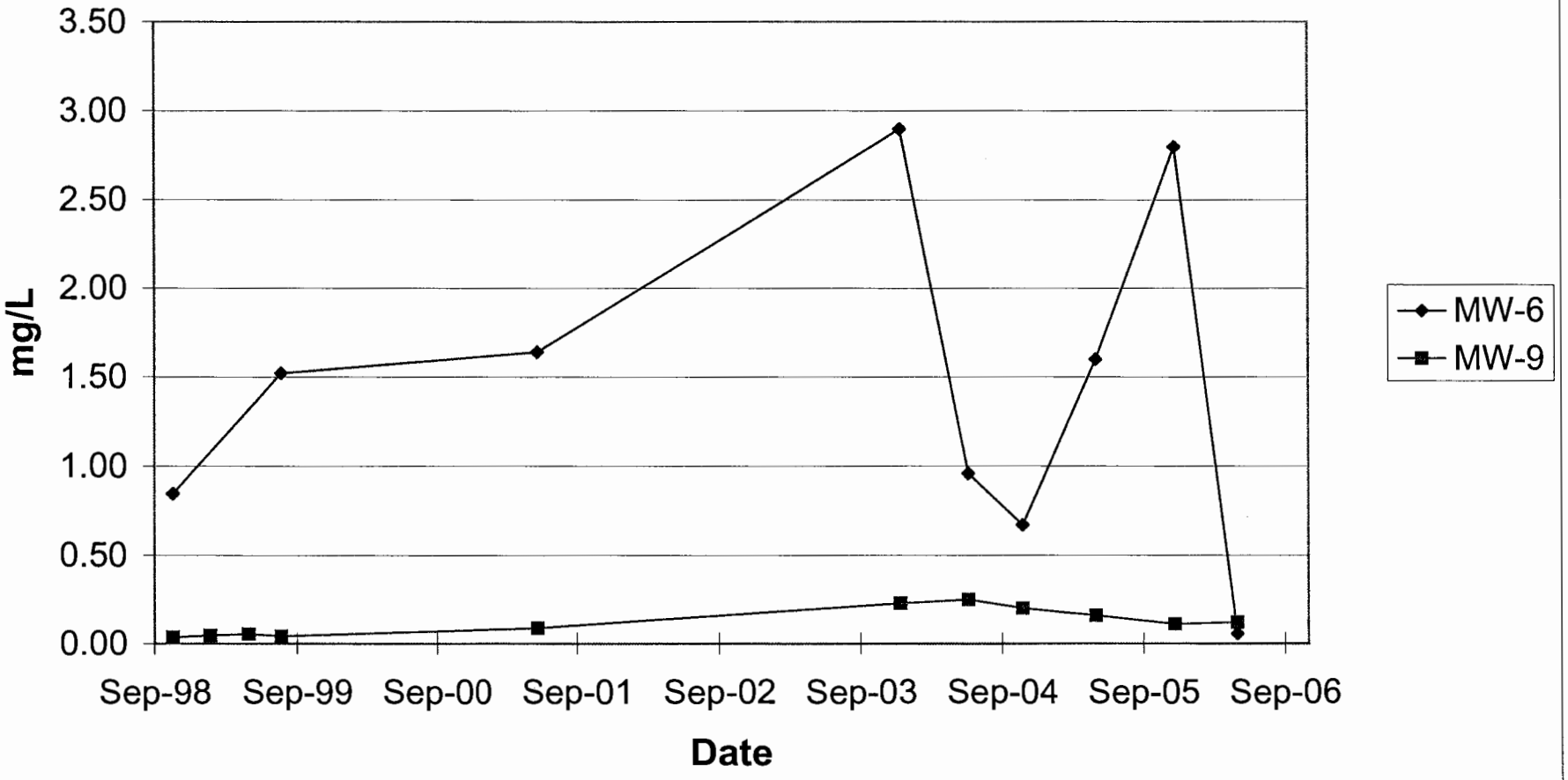


Figure 6
Hexavalent Chromium Concentration vs. Groundwater Elevation
MW-9

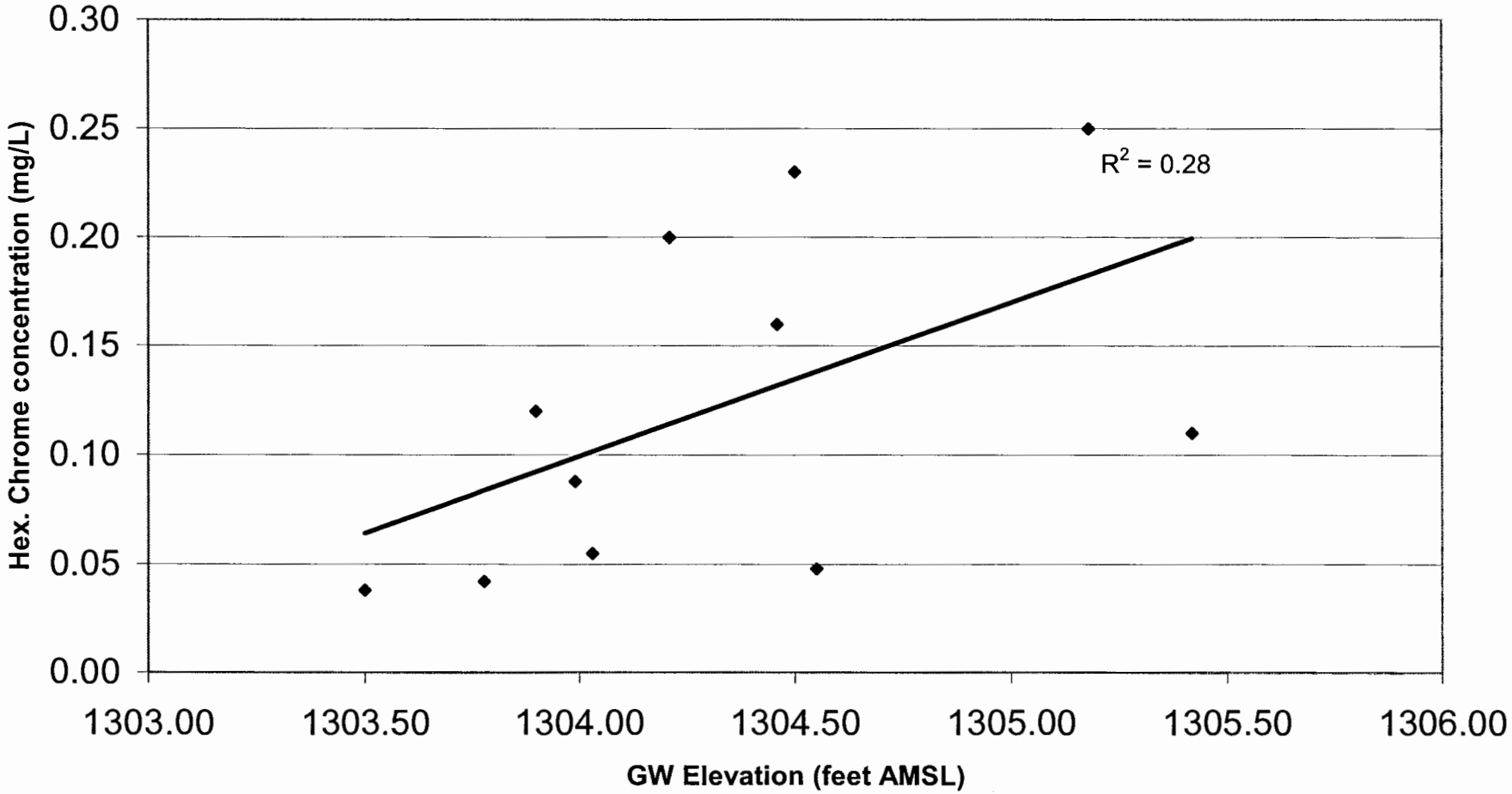
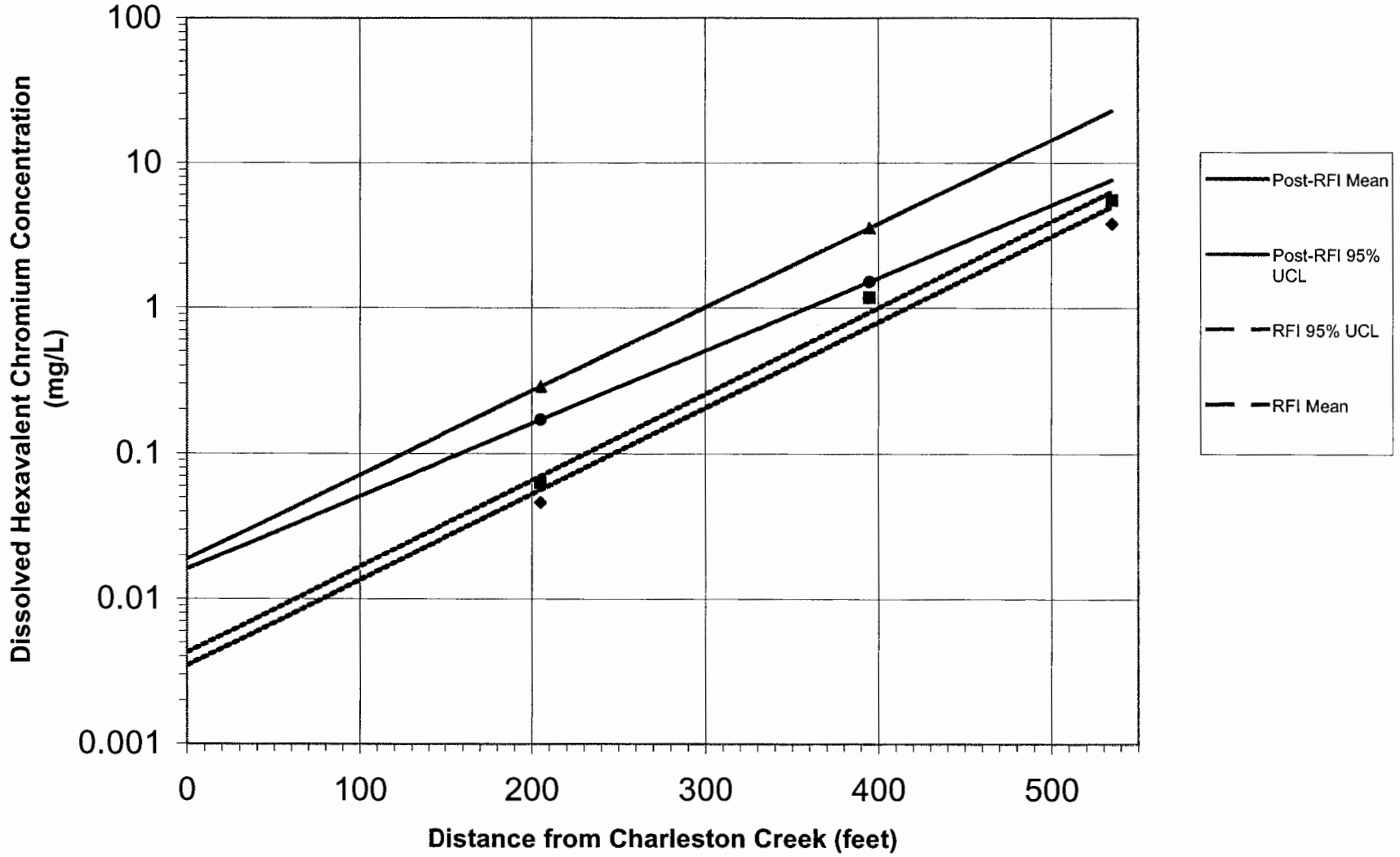


FIGURE 7

Log Plot of Hexavalent Chromium vs. Distance from Charleston Creek



TABLES

TABLE 1

OSRAM SYLVANIA PRODUCTS, INC.
WELLSBORO, PENNSYLVANIA
SEMI-ANNUAL GROUNDWATER MONITORING HISTORICAL COMPARISON
Groundwater Elevations

Sampling Date	Sampling Location					
	MW-6	MW-9	MW-10	MW-12	MW-13	MW-14
10/29/98	1305.05	1303.50	1305.14	1300.15	1302.62	1303.19
02/01/99	1305.98	1304.55	1306.01	1300.50	1303.02	1303.88
05/10/99	1305.69	1304.03	1305.77	1300.37	1302.94	1303.64
08/02/99	1305.32	1303.78	1305.36	1300.16	1302.62	1303.29
05/31/01	1305.54	1303.99	1305.65	1300.31	1302.86	1303.52
12/22/03	1306.12	1304.50	1306.22	1300.86	1303.21	1304.02
06/15/04	1305.68	1305.18	1305.81	NA	1303.04	NA
11/02/04	1305.81	1304.21	1305.89	1300.89	1303.46	1304.40
05/11/05	1305.88	1304.46	1305.92	NA	1303.47	NA
11/30/05	1306.62	1305.42	1306.72	1302.31	1304.11	1304.48
05/10/06	1305.46	1303.90	1305.58	NA	1303.45	NA

Notes: 1. All values are in feet above mean sea level

2. Shaded values were obtained during the RFI

TABLE 2

OSRAM SYLVANIA PRODUCTS, INC.
WELLSBORO, PENNSYLVANIA
SEMI-ANNUAL GROUNDWATER MONITORING HISTORICAL COMPARISON
Field Parameters

Parameter	Units	Sampling Date	Sampling Location					
			MW-6	MW-9	MW-10	MW-12	MW-13	MW-14
pH	S.U.	10/29/98	6.0	7.8	6.8	8.0	7.6	7.1
		02/01/99	5.7	6.9	7.7	7.2	7.6	7.0
		05/10/99	NA	7.0	NA	7.1	7.4	6.7
		08/02/99	6.3	6.7	6.7	7.4	7.3	7.0
		05/31/01	5.6	6.1	6.2	6.8	7.0	6.2
		12/22/03	5.7	6.5	6.2	7.0	7.3	6.6
		06/15/04	7.2	7.2	6.7	NA	7.9	NA
		11/02/04	7.0	7.0	6.7	6.9	6.9	6.9
		05/11/05	5.4	6.3	5.6	NA	7.9	NA
		11/30/05	5.6	6.2	5.9	6.7	7.1	6.5
		05/10/06	6.8	6.7	5.8	NA	7.7	NA
Eh (ORP)	mV	10/29/98	290	235	270	-35	145	170
		02/01/99	300	255	240	-45	135	230
		05/10/99	NA	235	NA	-55	180	205
		08/02/99	285	185	205	-65	130	180
		05/31/01	279	256	319	-29	46	229
		12/22/03	117	133	64	-1	134	131
		06/15/04	66	65	91	NA	16	NA
		11/02/04	85	82	92	85	85	86
		05/11/05	140	92	129	NA	1	NA
		11/30/05	85	53	68	24	4	38
		05/10/06	285	6	258	NA	-104	NA
Temperature	°C	10/29/98	15	16	15	14	18	18
		02/01/99	10	7	8	9	10	11
		05/10/99	NA	14	NA	14	15	15
		08/02/99	19	19	18	17	21	21
		05/31/01	15	12	12	11	15	13
		12/22/03	12	10	9	9	11	10
		06/15/04	19	18	16	NA	18	NA
		11/02/04	15	16	15	14	15	16
		05/11/05	15	14	14	NA	16	NA
		11/30/05	10	9	9	9	11	10
		05/10/06	14	11	12	NA	13	NA
Conductivity	µmhos/cm	10/29/98	370	790	450	700	2,480	510
		02/01/99	1,300	1,200	180	600	2,210	500
		05/10/99	NA	1,300	NA	700	2,410	590
		08/02/99	900	1,220	500	800	2,550	600
		05/31/01	1,800	3,200	370	1,400	2,300	870
		12/22/03	1,100	2,700	500	2,100	2,600	600
		06/15/04	1,000	2,700	600	NA	2,600	NA
		11/02/04	960	1,700	620	2,390	3,490	580
		05/11/05	2,000	2,700	1,000	NA	3,200	NA
		11/30/05	1,365	2,760	789	2,290	2,680	775
		05/10/06	960	2,030	1,154	NA	3,220	NA

Notes: 1. Shaded values were obtained during the RFI

TABLE 3

OSRAM SYLVANIA PRODUCTS, INC.
WELLSBORO, PENNSYLVANIA
SEMI-ANNUAL GROUNDWATER MONITORING HISTORICAL COMPARISON
Dissolved Metals

Parameter	Units	RFI Trigger Level	Sampling Date	Sampling Location					
				MW-6	MW-9	MW-10	MW-12	MW-13	MW-14
Dissolved Hexavalent Chromium	mg/L	0.11	10/29/98	0.845	0.038	0.019	< 0.0030	< 0.0030	< 0.0030
			02/01/99	NA	0.048	NA	NA	NA	0.0032 J
			05/10/99	NA	0.055	NA	NA	NA	< 0.0030
			08/02/99	1.52	0.042	0.044	NA	NA	< 0.0030
			05/31/01	1.64	0.088	< 0.0030	0.552 *	NA	< 0.0030
			12/22/03	2.90	0.230	< 0.0030	< 0.030	NA	< 0.0030
			06/15/04	0.96	0.250	< 0.0060	NA	NA	NA
			11/02/04	0.67	0.200	< 0.0060	< 0.0060	NA	< 0.0060
			05/11/05	1.60	0.160	< 0.0050	NA	NA	NA
			11/30/05	2.80	0.110	0.023	< 0.0050	NA	< 0.0050
			05/10/06	0.055	0.120	< 0.0050	NA	NA	NA
Dissolved Arsenic	mg/L	0.05	10/29/98	NA	NA	NA	0.026	0.168	< 0.0070
			02/01/99	NA	NA	NA	0.011	0.039	< 0.0070
			05/10/99	NA	NA	NA	< 0.0070	0.083	< 0.0070
			08/02/99	NA	NA	NA	0.022	0.091	< 0.0070
			05/31/01	NA	NA	NA	0.0215 J	0.0561 J	NA
			12/22/03	NA	NA	NA	0.011	0.067	NA
			06/15/04	NA	NA	NA	NA	0.060	NA
			11/02/04	NA	NA	NA	0.0148	0.143	NA
			05/11/05	NA	NA	NA	NA	0.206	NA
			11/30/05	NA	NA	NA	< 0.0093	0.131	NA
			05/10/06	NA	NA	NA	NA	0.129	NA

Notes:
1. "J" qualifier indicates that the parameter was detected at a concentration less than the Practical Quantification Limit and should therefore be considered an estimated value
2. " * " indicates that the value is a statistical outlier
3. Shaded values were obtained during the RFI

TABLE 4

OSRAM SYLVANIA PRODUCTS, INC.
WELLSBORO, PENNSYLVANIA
SEMI-ANNUAL GROUNDWATER MONITORING HISTORICAL COMPARISON
Statistical Analyses on Dissolved Metals Concentrations

Period	Statistic	Monitoring Well and Parameter				
		MW-6 Dissolved Hexavalent Chromium	MW-9 Dissolved Hexavalent Chromium	MW-10 Dissolved Hexavalent Chromium	MW-12 Dissolved Arsenic	MW-13 Dissolved Arsenic
During the RFI	Mean	1.18	0.046	0.032	0.017	0.095
	Number of Samples	2	4	2	4	4
	Degrees of Freedom	1	3	1	3	3
	Standard Deviation	0.477	0.007	0.018	0.009	0.054
	95% UCL	4.20	0.063	0.143	0.038	0.221
Post-RFI	Mean	1.52	0.17	0.007	0.016	0.113
	Number of Samples	7	7	7	4	7
	Degrees of Freedom	6	6	6	3	6
	Standard Deviation	1.06	0.06	0.007	0.005	0.06
	95% UCL	3.58	0.287	0.021	0.026	0.221

Notes: 1. 95% UCL is equal to the mean plus X times the standard deviation, where X is a function of the degrees of freedom, per the Student's t test:

Degrees of Freeedom	X
1	6.314
2	2.920
3	2.353
4	2.132
5	2.015
6	1.943